

CLAIMS

1. Process for the manufacture of 1,1-difluoroethane by liquid-phase fluorination of 1,2-dichloroethane using hydrofluoric acid in the presence of a Lewis acid as catalyst, characterized in that the said fluorination is carried out in the presence of FeCl₃ as cocatalyst.

2. Process according to Claim 1, characterized in that use is made of a Lewis acid comprising a compound based on tin, antimony, titanium, molybdenum, tungsten, niobium or tantalum.

3. Process according to either of Claims 1 and 2, characterized in that the Lewis acid is a titanium-based compound.

4. Process according to one of Claims 1 to 3, characterized in that the Lewis acid is a halide, an oxide or an oxyhalide.

5. Process according to one of Claims 1 to 4, characterized in that the Lewis acid is titanium tetrachloride.

6. Process according to one of Claims 1 to 5, characterized in that it is carried out in hydrofluoric acid as solvent.

7. Process according to one of Claims 1 to 6, characterized in that the amount of catalyst to be employed is between 0.0005 and 0.5 mol, preferably between 0.001 and 0.1 mol, per mole of solvent present in the reactor.

8. Process according to one of Claims 1 to 7, characterized in that the cocatalyst/catalyst molar ratio is between 0.01 and 1, preferably between 0.05 and 0.5.

9. Process according to one of Claims 1 to 8, characterized in that its implementation temperature is between 30 and 180°C, preferably between 50 and 130°C.

10. Process according to one of Claims 1 to 9, characterized in that its implementation pressure is between 0.2 and 5 MPa absolute, preferably between 0.5 and 4 MPa absolute.

11. Process according to one of Claims 1 to 10, characterized in that it is carried out continuously.

12. Process for the manufacture of 1,1-difluoroethylene comprising:

- (i) the preparation of 1,1-difluoroethane from 1,2-dichloroethane according to the process defined in one of Claims 1 to 11, then

- (ii) the gas-phase chlorination of the 1,1-difluoroethane thus obtained to 1-chloro-1,1-difluoroethane at a temperature of between 30 and 150°C, preferably between 50 and

120°C, then

- (iii) the gas-phase pyrolysis of the 1-chloro-1,1-difluoroethane thus obtained at a temperature of between 500 and 600°C, preferably between 520 and 580°C, and in the absence of catalyst.